

REMARKS

The present application relates to inbred maize plant and seed PHJ8R. Claims 1-30 are pending in the present application. Claims 2, 19-22, 25-28, and 30 have been amended. Claim 16 has been canceled. No new matter has been added by way of amendment. Applicant respectfully requests consideration of the claims in view of the following remarks.

Detailed Action

Applicant has amended the specification to include the U.S. Patent No. of the parent application on page 1, lines 9-11 as requested by the Examiner. No new matter has been added.

Applicant further acknowledges that a proper form 1449 Information Disclosure Statement (IDS) has been submitted as requested by the Examiner.

Claim Objections

The Examiner states that "should claims 2 and 3 be found allowable, claims 5 and 6 will be objected to under 37 C.F.R. § 1.75 as being a substantial duplicate thereof".

Applicant respectfully traverses this objection. The scope of the claims in claims 2-3 and 5-6 are not the same. Claims 2 and 3 are to a maize plant or maize plant part from the seed having been deposited under ATCC Accession No. PTA-4293. In contrast, claims 5 and 6 are to a maize plant or maize plant part of an F1 hybrid maize seed crossed with a different maize plant. Further, Applicant asserts claims 2-3 and 5-6 are in proper dependent form as taught in MPEP § 608.01(n) and 37 C.F.R. § 1.75(c). Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claims 2-3 and 5-6, were in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this objection be alleviated in light of the above statements.

Double Patenting

The Examiner rejects claims 1-6, 11-18, 23, 24, 28 and 29 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-31 of copending U.S. Patent No. 6,723,900. The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other. *See* Office Action, pp. 3-5.

Applicant is herein submitting a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c), which disclaims any term of a patent issuing from this application which would extend beyond the term of copending U.S. Patent No. 6,723,900.

The Examiner further rejects claims 19-22 and 25-27 under the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-30 of copending U.S. Patent No. 6,723,900 in view of Larkins (U.S. Patent No. 6,232,535). The Examiner states that although the conflicting claims are not identical, they are not patentably distinct from each other. *See Office Action*, pp. 5-7.

Applicant is herein submitting a Terminal Disclaimer in compliance with 37 C.F.R. § 1.321(c), which disclaims any term of a patent issuing from this application which would extend beyond the term of copending U.S. Patent No. 6,723,900.

Therefore, Applicant submits that the claims are in proper form for allowance and respectfully request reconsideration and withdrawal of the nonstatutory obviousness-type double patenting rejection.

Rejections Under 35 U.S.C. § 112, Second Paragraph

Claims 2, 3, 20, 22, and 28-30 stand rejected under 35 U.S.C. § 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which Applicant regards as the invention. *See Office Action*, p. 7.

The Examiner states that claim 2 is indefinite for insufficient antecedent basis for "F1 hybrid maize seed". Applicant has now amended claim 2 to delete the language "the" and include the language --an--, in accordance with MPEP § 2173.05(d), thereby alleviating this rejection.

Claim 20 is indefinite according to the Examiner for "the article 'a' in the recitation, 'the single locus was stably inserted into a maize genome by transformation'". Although not acceding to the Examiner's rejection, in an effort to reduce the issues upon appeal, Applicant has now amended claim 20 to include the language --of the plant of claim 11--, as suggested by the Examiner, thus alleviating this rejection.

The Examiner states that claim 22 is indefinite in the recitation "yield enhancement" and "improved nutritional quality". Applicant respectfully traverses. "Yield Advantage" is defined on page 14 of the specification as "the yield advantage of variety #1 over variety #2". Therefore

yield enhancement would be the improvement of the trait yield over another variety. Applicant asserts that genes which increase yield by increasing the plants resistance to disease, herbicides, or insects are within the scope of the claims as presented. The specification teaches multiple ways of introgressing or transforming a maize plant with various genes which confer advantageous traits desired in the plant. *See* specification, pp. 27-34. The specification also teaches many transgenes that could be inserted into the plant of claim 11. *See* specification, pp. 27-32. In addition, see U.S. Patent No. 5,936,145, issued August 10, 1999, which is prior to the filing date of the instant application. Claim 39 reads as follows: "[t]he single gene conversion of the corn plant of claim 29, where the gene confers enhanced yield stability." Thus, a single gene that confers enhanced yield stability was known in the art prior to the filing date of the instant application. One of skill in the art would recognize that it is common to transform a maize plant with various genes in order to confer desired traits to the maize plant.

Similarly, "improved nutritional quality" would represent an improvement in the nutritional quality versus another variety as described on page 20 of the specification. Further, single genes that affect nutritional quality are known in the art. Specifically genes for modified fatty acids, decreased phytate content and modified carbohydrate compositions which are disclosed in the specification on p. 31. Applicant respectfully submits that one skilled in the art would thus recognize that claim 22 is adequately defined.

Claim 28 is indefinite "as the preamble of the claim indicates that the method is for developing a maize plant breeding program using plant breeding techniques...the claim does not indicate when the maize plant is developed". Applicant traverses this rejection. Applicant has obtained allowance from the Supervisory Patent Examiner, Anne Marie Grunberg, regarding claim 28 as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 28, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

In light of the above amendments and remarks, Applicant respectfully requests reconsideration and withdrawal of the rejections under 35 U.S.C. § 112, second paragraph.

Rejections Under 35 U.S.C. § 112, First Paragraph

A. Written description regarding Claim 16

Claim 16 stands rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The Examiner states "the claim is broadly drawn towards any maize seed produced by growing a hybrid maize plant, wherein the hybrid maize plant was produced by crossing a maize plant having all the morphological and physiological characteristics of maize plant PHJ8R with a second maize plant". *See* Office Action, p. 8.

Although not acceding to the Examiner's rejection, in an effort to expedite prosecution and reduce the issues upon appeal, Applicant has now canceled claim 16, thereby alleviating this rejection.

B. Written description regarding Claims 7-10, 19-22, 25 and 30

Claims 7-10, 19-22, 25 and 30 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter, which was not described in the specification in such a way as reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. *See* Office Action, pp. 9-10.

The Examiner states that claim 7 is "drawn to an inbred maize plant cell of inbred maize line PHJ8R...there is no written description support for such a seed, or plant produced therefrom, in the specification".

Applicant traverses this rejection. Applicant asserts there is adequate written description in the specification for "an inbred maize plant cell" on page 21 of the specification:

As used herein, the term plant includes plant cells, plant protoplasts, plant cell tissue cultures from which maize plants can be regenerated, plant calli, plant clumps, and plant cells that are intact in plants or parts of plants, such as embryos, pollen, ovules, seeds, flowers, kernels, ears, cobs, leaves, husks, stalks, roots, root tips, anthers, silk and the like. Specification, p. 21, ll. 1-5.

Applicant asserts that the use of this terminology would be well understood to one ordinarily skilled in the art. In addition, Applicant are aware that in view of a meeting with the

Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 7, were in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

The Examiner goes on to state that claim 19 lacks written description support for "single locus conversion". Although not acceding to the Examiner's rejection, in an effort to expedite prosecution, Applicant has amended claims 19-22 to read "single gene conversion", as supported in the specification on page 20, further defining the claims. Applicant further submit that the terms "single gene conversion" and "single locus conversion" are synonymous and would be well understood by one of ordinary skill in the art. Applicant respectfully submits that one skilled in the art would thus recognize that Applicant have adequately described claim 19.

The Examiner states that claim 25 "does not have support for '0-5 generations'". Applicant traverse this rejection. Applicant asserts the specification provides adequate written description for the claimed language:

Pedigree breeding starts with the crossing of two genotypes, each of which may have one or more desirable characteristics that is lacking in the other or which complements the other. If the two original parents do not provide all the desired characteristics, other sources can be included in the breeding population. In the pedigree method, superior plants are selfed and selected in successive generations. In the succeeding generations the heterozygous condition gives way to homogeneous lines as a result of self-pollination and selection. Typically in the pedigree method of breeding five or more generations of selfing and selection is practiced: $F_1 \rightarrow F_2$; $F_2 \rightarrow F_3$; $F_3 \rightarrow F_4$; $F_4 \rightarrow F_5$, etc. Specification, p. 4, ll. 1-9.

It is also important to note that after five or more backcross generations with selection for the desired trait, the progeny will be homozygous for loci controlling the characteristic being transferred, but will be like the superior parent. *See* specification, p. 4, ll. 17-20. Applicant respectfully submits that one skilled in art would recognize that Applicant has adequately described claim 25.

Furthermore, in an effort to expedite prosecution Applicant has amended claim 25 in a manner which has obtained allowance from the Supervisory Patent Examiner, Anne Marie Grunberg, as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including

claim 25, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

The Examiner further states that claims "there is no support for step (c) of claim 30.

Although not acceding to the Examiner's rejection, in an effort to expedite prosecution, Applicant has amended claim 30 in a manner which has obtained allowance from the Supervisory Patent Examiner, Anne Marie Grunberg, as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Thus, Applicant respectfully requests this rejection be alleviated in light of the amendment and the above statements.

One skilled in the art would thus recognize that Applicant has fully described and fully satisfied the legal standards of written description for claims 7-10, 19-22, 25 and 30 as of the filing date of the application. Accordingly, Applicant respectfully requests reconsideration and withdrawal of the written description rejections under 35 U.S.C. §112, first paragraph.

C. Enablement regarding Claims 7-10

Claims 7-10 stand rejected under 35 U.S.C. § 112, first paragraph, as failing to comply with the enablement requirement. *See* Office Action, pp. 10-11.

The Examiner states that claim 7 is not enabled. Applicant traverses this rejection. Applicant asserts that claim 7 is adequately described and further enabled as evidenced by the statements described *supra*. Further, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claim 7, was in proper form and would be allowable as has been evidenced in analogous allowed and issued Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements

Applicant further asserts that dependent claims 8-10 are also adequately described and enabled. The Examiner does not provide explanation as to why these claims are not enabled. Nevertheless, Applicant maintains the arguments described *supra* also apply to dependent claims 8-10. Moreover, Applicant is aware that in view of a meeting with the Group Director in July 2006, the Examiner's were informed that the present claim set, including claims 8-10, was in proper form and would be allowable as has been evidenced in analogous allowed and issued

Pioneer Hi-Bred Int'l, Inc. inbred continuation cases. Applicant respectfully requests this rejection be alleviated in light of the above statements.

Accordingly, Applicant submits that claims 7-10 are fully enabled and have fully satisfied the legal standards for enablement. Applicant respectfully requests reconsideration and withdrawal of the enablement rejections under 35 U.S.C. § 112, first paragraph.

Rejections Under 35 U.S.C. §§ 102(b)/103(a)

Claim 16 is rejected under 35 U.S.C. § 102(b) as being anticipated by or, in the alternative, under 35 U.S.C. § 103(a) as obvious over Johnson (U.S. Patent 5,859,355). The Examiner states that "seed may have been produced from a method different from those of the instantly claimed seed. However the instantly claimed products do not appear to differ from the products taught by the reference". *See* Office Action, pp. 11-12.

Although not acceding to the Examiner's rejection, in an effort to expedite prosecution, claim 16 has been canceled, thus alleviating this rejection. Applicant respectfully requests the Examiner withdraw the rejections to claim 16 under 35 U.S.C. § 102(b) or 35 U.S.C. § 103(a) as obvious over Johnson (U.S. Patent 5,859,355).

Request for Information under 37 C.F.R. § 1.105

The Examiner has made a Request for Information under 37 C.F.R. § 1.105. The Examiner states the requested information is "required to make a meaningful and complete search of the prior art". *See* Office Action— Request for Information Under 37 C.F.R. § 1.105, pp. 13-15.

Applicant provides answers to each of the Examiner's interrogatories discussed *infra*.

The Examiner begins by asking firstly, what were the original parental maize lines used to produce maize inbred line PHJ8R? Please supply information pertaining to the lineage of the original parental lines back to any publicly available varieties. PH79A and PH2V9. Information pertaining to the lineage of the original parental lines is available within the PVP Application No. 200000206, attached as Appendix 1.

Secondly, what method and steps were used to produce maize inbred line PHJ8R? Backcrossing breeding method followed by pedigree selection.

Third, have any of said parental maize lines or progeny therefrom been disclosed or made publicly available?

a. The parental maize line PH79A was previously disclosed or made publicly available in PVP Certificate No. 9700229 and U.S. Patent No. 5,866,767. The parental maize line PH79A and PH2V9 was not previously disclosed or made publicly available.

b. No other progeny of the parental cross PH79A/PH2V9 was previously disclosed or made publicly available by Applicant prior to the earliest priority date.

Fourth, were any other maize lines produced by said method using said original parental maize lines, and if so, have said produced maize lines been publicly available or sold? If so, under what designation/denomination and under what conditions were said other maize lines disclosed or made publicly available? No other maize line using the same F1 cross has been produced by said method using said original parental maize lines at or before the time of filing of the instant application.

In light of the above remarks, Applicant respectfully requests reconsideration and compliance with the interrogatories under the Request for Information under 37 C.F.R. § 1.105.

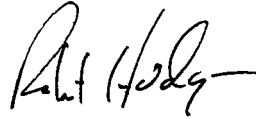
Conclusion

In conclusion, Applicant submits in light of the above amendments and remarks, the claims as amended are in a condition for allowance, and reconsideration is respectfully requested. If it is felt that it would aid in prosecution, the Examiner is invited to contact the undersigned at the number indicated to discuss any outstanding issues.

Please consider this a one month extension of time from November 28, 2006 to December 28, 2006, under the provision of 37 C.F.R. § 1.136(a) and charge Deposit Account No. 26-0084 for the amount of \$120.00. No other fees or extensions of time are believed to be due in connection with this amendment; however, consider this a request for any fees inadvertently omitted, and charge any additional fees to Deposit Account No. 26-0084.

Reconsideration and allowance is respectfully requested.

Respectfully submitted,

A handwritten signature in black ink, appearing to read "R. A. Hodgson", with a horizontal line extending from the end of the signature.

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CUSTOMER NO: 27142

- LATA / bjh -

Attorneys of Record

No.

200000206



THE UNITED STATES OF AMERICA

TO ALL TO WHOM THESE PRESENTS SHALL COME;

Pioneer Hi-Bred International, Inc.

Whereas, THERE HAS BEEN PRESENTED TO THE

Secretary of Agriculture

AN APPLICATION REQUESTING A CERTIFICATE OF PROTECTION FOR AN ALLEGED DISTINCT VARIETY OF SEXUALLY REPRODUCED, OR TUBER PROPAGATED PLANT, THE NAME AND DESCRIPTION OF WHICH ARE CONTAINED IN THE APPLICATION AND EXHIBITS, A COPY OF WHICH IS HEREUNTO ANNEXED AND MADE A PART HEREOF, AND THE VARIOUS REQUIREMENTS OF LAW IN SUCH CASES MADE AND PROVIDED HAVE BEEN COMPLIED WITH, AND THE TITLE THERETO IS, FROM THE RECORDS OF THE PLANT VARIETY PROTECTION OFFICE, IN THE APPLICANT(S) INDICATED IN THE SAID COPY, AND WHEREAS, UPON DUE EXAMINATION MADE, THE SAID APPLICANT(S) IS (ARE) ADJUDGED TO BE ENTITLED TO A CERTIFICATE OF PLANT VARIETY PROTECTION UNDER THE LAW.

NOW, THEREFORE, THIS CERTIFICATE OF PLANT VARIETY PROTECTION IS TO GRANT UNTO THE SAID APPLICANT(S) AND THE SUCCESSORS, HEIRS OR ASSIGNS OF THE SAID APPLICANT(S) FOR THE TERM OF TWENTY YEARS FROM THE DATE OF THIS GRANT, SUBJECT TO THE PAYMENT OF THE REQUIRED FEES AND PERIODIC REPLENISHMENT OF VIABLE BASIC SEED OF THE VARIETY IN A PUBLIC REPOSITORY AS PROVIDED BY LAW, THE RIGHT TO EXCLUDE OTHERS FROM SELLING THE VARIETY, OR OFFERING IT FOR SALE, OR REPRODUCING IT, OR IMPORTING IT, OR EXPORTING IT, OR CONDITIONING IT FOR PROPAGATION, OR STOCKING IT FOR ANY OF THE ABOVE PURPOSE, OR USING IT IN MAKING A HYBRID OR DIFFERENT VARIETY THEREFROM, TO THE EXTENT PROVIDED BY THE PLANT VARIETY PROTECTION ACT. (84 STAT. 1542, AS AMENDED, 7 U.S.C. 2321 ET SEQ.)

CORN, FIELD

'PHJ8R'



In Testimony Whereof, I have hereunto set my hand and caused the seal of the Plant Variety Protection Office to be affixed at the City of Washington, D.C. this thirtieth day of January, in the year two thousand two.

Attest:

Paul M. Zakant

Commissioner
Plant Variety Protection Office
Agricultural Marketing Service

Arthur C. Freeman

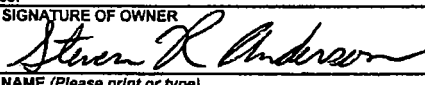
Secretary of Agriculture

U.S. DEPARTMENT OF AGRICULTURE
AGRICULTURAL MARKETING SERVICE
SCIENCE AND TECHNOLOGY DIVISION - PLANT VARIETY PROTECTION OFFICE

APPLICATION FOR PLANT VARIETY PROTECTION CERTIFICATE
(Instructions and information collection burden statement on reverse)

The following statements are made in accordance with the Privacy Act of 1974 (5 U.S.C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF OWNER Pioneer Hi-Bred International, Inc.		2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER PHJ8R	
4. ADDRESS (Street and No. or RFD No., City, State and Zip Code, and Country) 7301 NW 62 nd Avenue P.O. Box 85 Johnston, IA 50131-0085		5. TELEPHONE (Include area code) 515/270-4051	
7. IF THE OWNER NAMED IS NOT A "PERSON", GIVE FORM OF ORGANIZATION (corporation, partnership, association, etc.) Corporation		8. IF INCORPORATED, GIVE STATE OF INCORPORATION IOWA	
10. NAME AND ADDRESS OF OWNER REPRESENTATIVE(S) TO SERVE IN THIS APPLICATION (FIRST PERSON LISTED WILL RECEIVE ALL PAPERS) Steven R. Anderson Research and Product Development P.O. Box 85 Johnston, IA 50131-0085		9. DATE OF INCORPORATION March 5, 1999	
11. TELEPHONE (Include area code) 515/270-4051		12. FAX (Include area code) 515/253-2125	
13. E-MAIL ANDERSONS@PHIBRED.COM		14. CROP KIND NAME (Common name) CORN	
15. GENUS AND SPECIES NAME OF CROP Zea Mays		16. FAMILY NAME (Botanical) Gramineae	
17. IS THE VARIETY A FIRST GENERATION HYBRID? <input type="checkbox"/> Yes <input checked="" type="checkbox"/> No		18. CHECK APPROPRIATE BOX FOR EACH ATTACHMENT SUBMITTED (Follow instructions on reverse)	
a. <input checked="" type="checkbox"/> Exhibit A. Origin and Breeding History of the Variety b. <input checked="" type="checkbox"/> Exhibit B. Statement of Distinctness c. <input checked="" type="checkbox"/> Exhibit C. Objective Description of the Variety d. <input checked="" type="checkbox"/> Exhibit D. Additional Description of the Variety (Optional) e. <input checked="" type="checkbox"/> Exhibit E. Statement of the Basis of the Owner's Ownership f. <input checked="" type="checkbox"/> Voucher Sample (2500 viable untreated seeds or, for tuber propagated varieties verification that tissue culture will be deposited and maintained in an approved public repository) g. <input checked="" type="checkbox"/> Filing and Examination Fee (\$2,450), made payable to "Treasurer of the United States" (Mail to Plant Variety Protection Office)		19. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE SOLD AS A CLASS OF CERTIFIED SEED? See Section 83(a) of the Plant Variety Protection Act) <input type="checkbox"/> YES (If "yes", answer items 20 and 21 below) <input checked="" type="checkbox"/> NO (If "no", go to item 22)	
20. DOES THE OWNER SPECIFY THAT SEED OF THIS VARIETY BE LIMITED AS TO NUMBER OF GENERATIONS? <input type="checkbox"/> YES <input type="checkbox"/> NO		21. IF "YES" TO ITEM 20, WHICH CLASSES OF PRODUCTION BEYOND BREEDER SEED? <input type="checkbox"/> FOUNDATION <input type="checkbox"/> REGISTERED <input type="checkbox"/> CERTIFIED	
22. HAS THE VARIETY (INCLUDING ANY HARVESTED MATERIAL) OR A HYBRID PRODUCED FROM THIS VARIETY BEEN SOLD, DISPOSED OF, TRANSFERRED, OR USED IN THE U.S. OR OTHER COUNTRIES? <input checked="" type="checkbox"/> YES <input type="checkbox"/> NO IF YES, YOU MUST PROVIDE THE DATE OF FIRST SALE, DISPOSITION, TRANSFER, OR USE FOR EACH COUNTRY AND THE CIRCUMSTANCES. (Please use space indicated on reverse)		23. IS THE VARIETY OR ANY COMPONENT OF THE VARIETY PROTECTED BY INTELLECTUAL PROPERTY RIGHT (PLANT BREEDER'S RIGHT OR PATENT)? <input type="checkbox"/> YES <input checked="" type="checkbox"/> NO IF YES, PLEASE GIVE COUNTRY, DATE OF FILING OR ISSUANCE AND ASSIGNED REFERENCE NUMBER. (Please use space indicated on reverse)	
24. The owner(s) declare that a viable sample of basic seed of the variety will be furnished with application and will be replenished upon request in accordance with such regulations as may be applicable, or for a tuber propagated variety a tissue culture will be deposited in a public repository and maintained for the duration of the certificate. The undersigned owner(s) is(are) the owner of this sexually reproduced or tuber propagated plant variety, and believe(s) that the variety is new, distinct, uniform, and stable as required in Section 42, and is entitled to protection under the provisions of Section 42 of the Plant Variety Protection Act. Owner(s) is(are) informed that false representation herein can jeopardize protection and results in penalties.			
SIGNATURE OF OWNER NAME (Please print or type)		SIGNATURE OF OWNER  NAME (Please print or type) Steven R. Anderson	
CAPACITY OR TITLE DATE		CAPACITY OR TITLE Senior Research Associate DATE 4-5-00	

INSTRUCTIONS

200000206

GENERAL: To be effectively filed with the Plant Variety protection Office (PVPO), ALL of the following items must be received in the PVPO: (1) Completed application form signed by the owner; (2) completed Exhibits A,B,C,E; (3) for a seed reproduced variety at least 2,500 viable untreated seeds, for a hybrid variety sy lrsdy 2,500 untreated seeds of each line necessary to reproduce the variety, or for tuber reproduced varieties verification that a viable (in the sense that it will reproduce an entire plant) tissue culture will be deposited and maintained in a approved public repository; (4) check drawn on a U.S. bank for \$2,450 (\$300 filing fee and \$2,150 examination fee), payable to "Treasurer of the United States" (See Section 97.6 of the Regulations and Rules of Practice.) Partial applications will be held in the PVPO for not more than 90 days, then returned to the applicant as unfiled. Mail application and other requirements to Plant Variety Protection Office, AMS, USDA, Room 500, NAL Building, 10301 Baltimore Avenue, Beltsville, MD 20705-2351. Retain one copy for your files. All items on the face of the application are self explanatory unless noted below. Corrections on the application form and exhibits must be initialed and dated. DO NOT use masking materials to make corrections. If a certificate is allowed, you will be requested to send a check payable to "Treasurer of the United States" in the amount of \$300 for issuance of the certificate. Certificates will be issued to owner, not licensee or agent.

Plant Variety Protection Office

Telephone: (301)504-5518

FAX: (301)504-5291

Homepage: <http://www.ams.usda.gov/science/pvp.htm>

ITEM

- 18a. Give:
 - (1) the genealogy, including public and commercial varieties, lines, or clones used, and the breeding method;
 - (2) the details of subsequent stages of selection and multiplication;
 - (3) evidence of uniformity and stability; and
 - (4) the type and frequency of variants during reproduction and multiplication and state how these variants may be identified.
- 18b. Give a summary of the variety's distinctness. Clearly state how this application variety may be distinguished from all other varieties in the same crop. If the new variety is most similar to one variety or a group of related varieties:
 - (1) identify these varieties and state all differences objectively;
 - (2) attach statistical data for characters expressed numerically and demonstrate that these are clear differences; and
 - (3) submit, if helpful, seed and plant specimens of photographs (prints) of seed and plant comparisons which clearly indicate distinctness.
- 18c. Exhibit C forms are available from the PVPO for most crops; specify crop kind. Fill in Exhibit C (Objective Description of Variety) form as completely as possible to describe your variety.
- 18d. Optional additional characteristics and/or photographs. Describe any additional characteristics that cannot be accurately conveyed in Exhibit C. Use comparative varieties as is necessary to reveal more accurately the characteristics that are difficult to describe, such as plant habit, plant disease resistance, etc.
- 18e. Section 52(5) of the Act required applicants to furnish a statement of the basis of the applicant's ownership. An Exhibit E form is available from the PVPO.
19. If "Yes" is specified (*seed of this variety be sold by variety name only, as a class of certified seed*), the applicant may NOT reverse this affirmative decision after the variety has been sold and so labeled, the decision published, or the certificate issued. However, if "No" has been specified, applicant may change the choice. (See *Regulations and Rules of Practice, Section 7.103*).
22. See Sections 41, 42, and 43 of the Act and Section 97.5 of the regulations for eligibility requirements.
23. See Section 5.5 of the Act for instructions on claiming the benefit of an earlier filing date.

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22. CONTINUED FROM FRONT (*Please provide the date of first sale, disposition, transfer, or use for each country and the circumstances, if the variety (including any harvested material) or a hybrid produced from this variety has been sold, disposed of, transferred, or used in the U.S. or other countries.*)

Nov. 1, 1999; United States

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23. CONTINUED FROM FRONT (*Please give the country, date of filing or issuance, and assigned reference number, if the variety or any component of the variety is protected by intellectual property right (Plant Breeder's Right or Patent).*)

NOTES: It is the responsibility of the applicant/owner to keep the PVPO informed of any changes of address or change of ownership or assignment or owner's representative during the life of the application/certificate. There is no charge for filing a change of address. The fee for filing a change of ownership or assignment or any modification of owner's name is specified in Section 97.175 of the regulations. (See *Section 101 of the Act, and Sections 97.130, 97.131, 97.175(h) of Regulations and Rules of Practice.*)

To avoid conflict with other variety names in use, the applicant should check the variety names proposed by contacting: Seed Branch, AMS, USDA, Room 213, Building 306, Beltsville Agricultural Research Center--East, Beltsville, MD 20705. Telephone: (301) 504-8089.

Public reporting burden for this collection of information is estimated to average 30 minutes per response, including the time for reviewing instruction, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information. Send comments regarding this burden estimate or any other aspect of this collection of information, including suggestions for reducing this burden, to Department of Agriculture, Clearance Officer, OIRM, AG Box 7630, Jamie L. Whitten Building, Washington, D.C. 20250. When replying, refer to OMB No. 0581-0055 and form number in your letter. Under the PRA of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number.

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Exhibit A. Origin and Breeding History

Pedigree: PH79A<5PH2V9-211)X4K2X

Pioneer Line PHJ8R, *Zea mays L.*, a dent corn inbred with waxy endosperm, was developed by Pioneer Hi-Bred International, Inc. by the backcrossing breeding method followed by pedigree selection. The recurrent parent was PH79A (Certificate No. 9700229). The donor parent was PH2V9. Varieties PH79A and PH2V9 are proprietary inbred lines of Pioneer Hi-Bred International, Inc. During backcrossing generations kernels were selected for waxy endosperm. In addition, plants were selected for PH79A plant type. Yield trials were grown at Windfall, Indiana, as well as other Pioneer research locations. After initial testing, subsequent generations of the line have been grown and hand-pollinated with observations again made for uniformity.

Variety PH2V9 was developed by the backcross breeding method. The recurrent parent was variety PHBW8 (PVP Certificate Number 9200079) and the donor parent was a source of the gene for waxy endosperm.

Variety PHJ8R has shown uniformity and stability for all traits as described in Exhibit C - "Objective Description of Variety". After backcrossing generations, it was self-pollinated and ear-rowed 2 generations with careful attention paid to selection criteria and uniformity of plant type to assure genetic homozygosity and phenotypic stability. The line has been increased both by hand and in isolated fields with continued observations for uniformity and stability for 8 generations during inbred development and seed multiplication. Very high standards for genetic purity have been established morphologically using field observations and electrophoretically using sound lab molecular marker methodology.

No variant traits have been observed or are expected in PHJ8R.

The criteria used in the selection of PHJ8R were waxy endosperm, PH79A plant type, yield, both per se and in hybrid combinations; late season plant health, grain quality, stalk lodging resistance, and kernel size, especially important in production. Other selection criteria include: ability to germinate in adverse conditions; number of tillers, especially important in production because having numerous tillers increases hybrid production costs spent on detasseling; disease and insect resistance; pollen yield and tassel size.

Exhibit A: Developmental history for PHJ8R

00000203

Season/Year Pedigree Grown	Inbreeding Level of Pedigree Grown
PH79A, PH2V9 MAR-95	F0
PH79A/PH2V9 JULY-95	F1
PH79A<2PH2V9 NOV-95	BC1F1
PH79A<3PH2V9-2 MAR-96	BC2F1
PH79A<4PH2V9-21 JULY-96	BC3F1
PH79A<5PH2V9-211 NOV-96	BC4F1
PH79A<5PH2V9-211)X MAY-97	BC4F2
PH79A<5PH2V9X-211)X4 NOV-97	BC4F3
PH79A<5PH2V9-211)X4K2 MAY-98	BC4F4
PH79A<5PH2V9-211)X4K2X	BC4F5

*PHJ8R was selfed and ear-rowed from F3 through F5 generation.

#Uniformity and stability were established from F1 through F6 generation and beyond when seed supplies were increased.

Exhibit B: Novelty Statement

Variety PHJ8R mostly resembles Pioneer Hi-Bred International, Inc. proprietary inbred line PH79A (PVP Certificate No. 9700229). The data in Tables 1A and 1B are from paired comparisons collected primarily in Johnston and Ankeny, IA. The data in Table 2 are from paired comparisons at multiple locations grown primarily in the adapted growing area of PHJ8R. The traits collectively show measurable differences between the two varieties.

Variety PHJ8R has a smaller tassel branch angle (10.1% vs 20.7%) than PH79A (Table 1A, 1B).

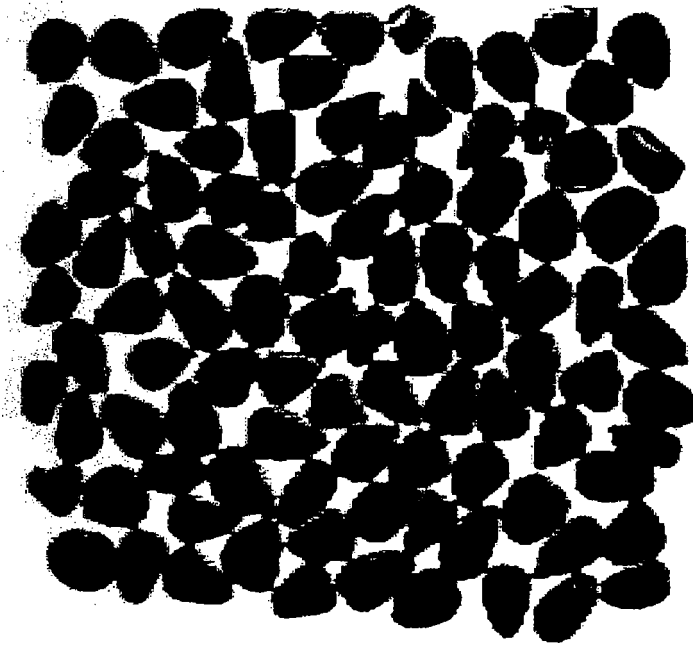
Variety PHJ8R has higher grain moisture at harvest (20.7% vs 18.8%) than PH79A (Table 2).

Variety PHJ8R has less kernels per kilogram (3613.8 ker/kg vs 3938.3 ker/kg) than PH79A (Table 2).

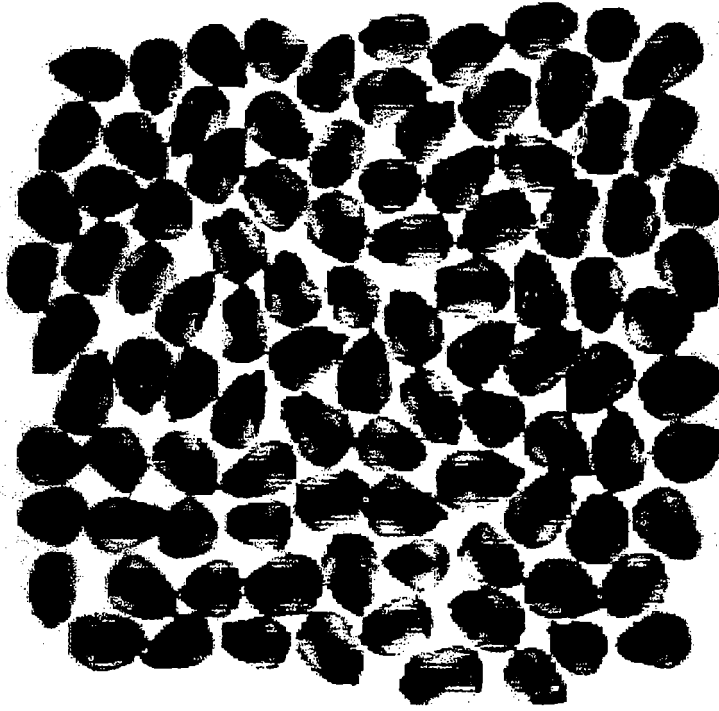
Variety PHJ8R has more kernels with waxy starch composition resulting in opaque appearance on a light table (100% opaque k per 100k vs 0.0 opaque k per 100k) than PH79A. (Table 1B; Figure 1).

Exhibit B. Novelty Statement Tables

Figure 1. This picture indicates visual differences between varieties PHJ8R and PH79A. When kernels are placed on a light table, PHJ8R kernels with waxy endosperm starch composition are opaque. Variety PH79A has normal endosperm starch composition and the kernels appear translucent.



PHJ8R



PH79A

000000200

Exhibit B: Novelty Statement Tables

Table 1A: Data from Johnston and Ankeny, IA at 3 different environments in 1999 are supporting evidence for differences between PHJ8R and PH79A. Locations had different environmental conditions. Environments had different planting dates and were in different fields.

Year	Traits	variety-1	variety-2	Count-1	Count-2	Mean-1	Mean-2	Mean Diff	DF Pooled	t-Value Pooled	Prob (2-tail) Pooled
1999	tassel branch angle (degrees)	PHJ8R	PH79A	5	5	4.2	17.6	-13.4	8	-4.00	0.004
1999	tassel branch angle (degrees)	PHJ8R	PH79A	5	5	15.2	24.2	-9.0	8	-2.54	0.035
1999	tassel branch angle (degrees)	PHJ8R	PH79A	5	5	11.0	20.4	-9.4	8	-2.66	0.029

Table 1B: Summary data from Johnston and Ankeny, IA across environments in 1999 are supporting evidence for differences between PHJ8R and PH79A. Locations had different environmental conditions. Environments had different planting dates and were in different fields. Tables below show means broken out by year and means broken out across years.

Year	Traits	variety-1	variety-2	Count-1	Count-2	Mean-1	Mean-2	Mean Diff	DF Pooled	t-Value Pooled	Prob (2-tail) Pooled
1999	Tassel branch angle (degrees)	PHJ8R	PH79A	15	15	10.1	20.7	-10.6	28	-4.54	0.000
1999	Visible opaque starch appearance on light table (#Opaque/100k selfed seed sample)	PHJ8R	PH79A	3	3	100	0	100		α	

α = "t" value is infinity because all waxy kernels were opaque in a selfed seed sample.

Exhibit B. Novelty Statement Tables

Table 2. These data indicate differences between varieties PHJ8R and PH79A. Data are from multiple locations and years grown primarily in the adapted growing area.

Variety 1 = PHJ8R

Variety 2 = PH79A

YEAR	VAR #	MST ABS	KER /KG ABS
1998	1	20.9	3726.9
	2	19.7	4027.7
	LOCS	17	7
	PROB	.017+	.008#
1999	1	20.5	3455.5
	2	17.7	3813.2
	LOCS	16	5
	PROB	.001#	.091*
TOTAL SUM	1	20.7	3613.8
	2	18.8	3938.3
	LOCS	33	12
	DIFF	1.9	324.5
	t-test PROB	.000#	.001#

DEFINITIONS

In the description and examples, a number of terms are used herein. In order to provide a clear and consistent understanding of the specification and claims, including the scope to be given such terms, the following definitions are provided:

- ANT ROT** = **ANTHRACNOSE STALK ROT** (*Colletotrichum graminicola*).
A 1 to 9 visual rating indicating the resistance to Anthracnose Stalk Rot. A higher score indicates a higher resistance.
- BAR PLT** = **BARREN PLANTS**.
The percent of plants per plot that were not barren (lack ears).
- BRT STK** = **BRITTLE STALKS**.
This is a measure of the stalk breakage near the time of pollination, and is an indication of whether a hybrid or inbred would snap or break near the time of flowering under severe winds. Data are presented as percentage of plants that did not snap.
- BU ACR** = **YIELD (BUSHEL/ACRE)**.
Yield of the grain at harvest in bushels per acre adjusted to 15.5% moisture.
- CLD TST** = **COLD TEST**.
The percent of plants that germinate under cold test conditions.
- CLN** = **CORN LETHAL NECROSIS**.
Synergistic interaction of maize chlorotic mottle virus (MCMV) in combination with either maize dwarf mosaic virus (MDMV-A or MDMV-B) or wheat streak mosaic virus (WSMV). A 1 to 9 visual rating indicating the resistance to Corn Lethal Necrosis. A higher score indicates a higher resistance.
- COM RST** = **COMMON RUST** (*Puccinia sorghi*).
A 1 to 9 visual rating indicating the resistance to Common Rust. A higher score indicates a higher resistance.
- DIP ERS** = **DIPLODIA EAR MOLD SCORES** (*Diplodia maydis* and *Diplodia macrospora*).
A 1 to 9 visual rating indicating the resistance to Diplodia Ear Mold. A higher score indicates a higher resistance.
- DRP EAR** = **DROPPED EARS**.
A measure of the number of dropped ears per plot and represents the percentage of plants that did not drop ears prior to harvest.
- EAR HT** = **EAR HEIGHT**.
The ear height is a measure from the ground to the highest placed developed ear node attachment and is measured in cm.
- EAR MLD** = **GENERAL EAR MOLD**.
Visual rating (1-9 score) where a "1" is very susceptible and a "9" is very resistant. This is based on overall rating for ear mold of mature ears without determining the specific mold organism, and may not be predictive for a specific ear mold.
- EAR SZ** = **EAR SIZE**.
A 1 to 9 visual rating of ear size. The higher the rating the larger the ear size.
- ECB 1LF** = **EUROPEAN CORN BORER FIRST GENERATION LEAF FEEDING** (*Ostrinia nubilalis*).
A 1 to 9 visual rating indicating the resistance to preflowering leaf feeding by first generation European Corn Borer. A higher score indicates a higher resistance.
- ECB 2IT** = **EUROPEAN CORN BORER SECOND GENERATION INCHES OF TUNNELING** (*Ostrinia nubilalis*).
Average inches of tunneling per plant in the stalk.

- 00000200
- ECB 2SC** = **EUROPEAN CORN BORER SECOND GENERATION** (*Ostrinia nubilalis*).
A 1 to 9 visual rating indicating post flowering degree of stalk breakage and other evidence of feeding by European Corn Borer, Second Generation. A higher score indicates a higher resistance.
- ECB DPE** = **EUROPEAN CORN BORER DROPPED EARS** (*Ostrinia nubilalis*).
Dropped ears due to European Corn Borer. Percentage of plants that did not drop ears under second generation corn borer infestation.
- EGRWTH** = **EARLY GROWTH**.
This is the visual rating (1 to 9) of the amount of vegetative growth after emergence at the seedling stage (approximately five leaves). A higher score indicates better vigor or early season growth.
- EST CNT** = **EARLY STAND COUNT**.
This is a measure of the stand establishment in the spring and represents the number of plants that emerge on per plot basis for the inbred or hybrid.
- EYE SPT** = **EYE SPOT** (*Kabatiella zeae* or *Aureobasidium zeae*).
A 1 to 9 visual rating indicating the resistance to Eye Spot. A higher score indicates a higher resistance.
- FUS ERS** = **FUSARIUM EAR ROT SCORE**. (*Fusarium moniliforme* or *Fusarium subglutinans*).
A 1 to 9 visual rating indicating the resistance to Fusarium ear rot. A higher score indicates a higher resistance.
- GDU** = **GROWING DEGREE UNITS**.
Using the Barger Heat Unit Theory, which assumes that maize growth occurs in the temperature range 50°F - 86°F and that temperatures outside this range slow down growth; the maximum daily heat unit accumulation is 36 and the minimum daily heat unit accumulation is 0. The seasonal accumulation of GDU is a major factor in determining maturity zones.
- GDU SHD** = **GDU TO SHED**.
The number of growing degree units (GDUs) or heat units required for an inbred line or hybrid to have approximately 50 percent of the plants shedding pollen and is measured from the time of planting. Growing degree units are calculated by the Barger Method, where the heat units for a 24-hour period are:
$$\text{GDU} = (\text{Max. Temp.} + \text{Min. temp.}) - 50/2$$

The highest maximum temperature used is 86° F. and the lowest minimum temperature used is 50°F. For each inbred or hybrid it takes a certain number of GDUs to reach various stages of plant development.
- GDU SLK** = **GDU TO SILK**.
The number of growing degree units required for an inbred line or hybrid to have approximately 50 percent of the plants with silk emergence from time of planting. Growing degree units are calculated by the Barger Method as given in GDU SHD definition.
- GIBERS** = **GIBBERELLA EAR ROT (PINK MOLD)** (*Gibberella zeae*).
A 1 to 9 visual rating indicating the resistance to Gibberella Ear Rot. A higher score indicates a higher resistance.
- GLF SPT** = **GRAY LEAF SPOT** (*Cercospora zeae-maydis*).
A 1 to 9 visual rating indicating the resistance to Gray Leaf Spot. A higher score indicates a higher resistance.
- GOS WLT** = **GOSS' WILT** (*Corynebacterium nebraskense*).
A 1 to 9 visual rating indicating the resistance to Goss' Wilt. A higher score indicates a higher resistance.

- GRN APP = GRAIN APPEARANCE.**
This is a 1 to 9 rating for the general appearance of the shelled grain as it is harvested based on such factors as the color of harvested grain, any mold on the grain, and any cracked grain. High scores indicate good grain quality.
- HC BLT = HELMINTHOSPORIUM CARBONUM LEAF BLIGHT (*Helminthosporium carbonum*).**
A 1 to 9 visual rating indicating the resistance to *Helminthosporium* infection. A higher score indicates a higher resistance.
- HD SMT = HEAD SMUT (*Sphacelotheca reiliana*).**
This score indicates the percentage of plants not infected.
- KER KG = KERNELS PER KILOGRAM.**
The number of kernels per 1 kilogram of seed after discard is removed.
- KSZ DCD = KERNEL SIZE DISCARD.**
The percent of discard seed; calculated as the sum of discarded tip kernels and extra large kernels.
- MDM CPX = MAIZE DWARF MOSAIC COMPLEX (MDMV = Maize Dwarf Mosaic Virus and MCDV = Maize Chlorotic Dwarf Virus).**
A 1 to 9 visual rating indicating the resistance to Maize Dwarf Mosaic Complex. A higher score indicates a higher resistance.
- MST = HARVEST MOISTURE.**
The moisture is the actual percentage moisture of the grain at harvest.
- NLF BLT = NORTHERN LEAF BLIGHT (*Helminthosporium turcicum* or *Exserohilum turcicum*).**
A 1 to 9 visual rating indicating the resistance to Northern Leaf Blight. A higher score indicates a higher resistance.
- PLT HT = PLANT HEIGHT.**
This is a measure of the height of the plant from the ground to the tip of the tassel in cm.
- POL SC = POLLEN SCORE.**
A 1 to 9 visual rating indicating the amount of pollen shed. The higher the score the more pollen shed.
- POL WT = POLLEN WEIGHT.**
This is calculated by dry weight of tassels collected as shedding commences minus dry weight from similar tassels harvested after shedding is complete.
- PRM = PREDICTED RELATIVE MATURITY.**
This trait, predicted relative maturity, is based on the harvest moisture of the grain. The relative maturity rating is based on a known set of checks and utilizes standard linear regression analyses and is also referred to as the Comparative Relative Maturity Rating System that is similar to the Minnesota Relative Maturity Rating System.
- PRM SHD = PREDICTED RELATIVE MATURITY GDU TO SHED.**
A relative measure of the growing degree units (GDU) required to reach 50% pollen shed. Relative values are predicted values from the linear regression of observed GDU's on relative maturity of commercial checks.
- RT LDG = ROOT LODGING.**
Root lodging is the percentage of plants that do not root lodge; plants that lean from the vertical axis at an approximately 30° angle or greater would be counted as root lodged.

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- SCT GRN** = **SCATTER GRAIN.**
A 1 to 9 visual rating indicating the amount of scatter grain (lack of pollination or kernel abortion) on the ear. The higher the score the less scatter grain.
- SEL IND** = **SELECTION INDEX.**
The selection index gives a single measure of the hybrid's worth based on information for up to five traits. A maize breeder may utilize his or her own set of traits for the selection index. One of the traits that is almost always included is yield. When selection index data is presented, the tables represent the mean value averaged across testing stations.
- SLF BLT** = **SOUTHERN LEAF BLIGHT** (*Helminthosporium maydis* or *Bipolaris maydis*).
A 1 to 9 visual rating indicating the resistance to Southern Leaf Blight. A higher score indicates a higher resistance.
- SOU RST** = **SOUTHERN RUST** (*Puccinia polysora*).
A 1 to 9 visual rating indicating the resistance to Southern Rust. A higher score indicates a higher resistance.
- STAGRN** = **STAYGREEN.**
Staygreen is the measure of plant health near the time of black layer formation (physiological maturity). A high score indicates better late-season plant health.
- STK CNT** = **NUMBER OF PLANTS.**
This is the final stand or number of plants per plot.
- STK LDG.** = **STALK LODGING.**
This is the percentage of plants that did not stalk lodge (stalk breakage) as measured by either natural lodging or pushing the stalks and determining the percentage of plants that break below the ear.
- STW WLT** = **STEWART'S WILT** (*Erwinia stewartii*).
A 1 to 9 visual rating indicating the resistance to Stewart's Wilt. A higher score indicates a higher resistance.
- TASBRN** = **TASSEL BRANCHES.**
This is the number of primary tassel branches.
- TAS SZ** = **TASSEL SIZE.**
A 1 to 9 visual rating was used to indicate the relative size of the tassel. The higher the rating the larger the tassel.
- TAS WT** = **TASSEL WEIGHT.**
This is the average weight of a tassel (grams) just prior to pollen shed.
- TEX EAR** = **EAR TEXTURE.**
A 1 to 9 visual rating was used to indicate the relative hardness (smoothness of crown) of mature grain. A 1 would be very soft (extreme dent) while a 9 would be very hard (flinty or very smooth crown).
- TILLER** = **TILLERS.**
A count of the number of tillers per plot that could possibly shed pollen was taken. Data are given as a percentage of tillers: number of tillers per plot divided by number of plants per plot.
- TST WT** = **TEST WEIGHT (UNADJUSTED).**
The measure of the weight of the grain in pounds for a given volume (bushel).
- YLD SC** = **YIELD SCORE.**
A 1 to 9 visual rating was used to give a relative rating for yield based on plot ear piles. The higher the rating the greater visual yield appearance.

United States Department of Agriculture, Agricultural Marketing Service
Science Division, Plant Variety Protection Office
National Agricultural Library Building, Room 500
Beltsville, MD 20705

Objective Description of Variety
Corn (*Zea mays* L.)

Name of Applicant (s) Pioneer Hi-Bred International, Inc.	Variety Seed Source	Variety Name or Temporary Designation PHJ8R
Address (Street & No., or RFD No., City, State, Zip Code and Country) 7301 NW 62nd Avenue, P.O. Box 85, Johnston, Iowa 50131-0085		FOR OFFICIAL USE PVPO Number
Place the appropriate number that describes the varietal characters typical of this inbred variety in the spaces below. Right justify whole numbers by adding leading zeroes if necessary. Completeness should be striven for to establish an adequate variety description. Traits designated by an '*' are considered Necessary for an adequate variety description and must be completed.		
COLOR CHOICES (Use in conjunction with Munsell color code to describe all color choices: describe #25 and #26 in Comments section):		
01=Light Green	06=Pale Yellow	11=Pink
02=Medium Green	07=Yellow	12=Light Red
03=Dark Green	08=Yellow Orange	13=Cherry Red
04=Very Dark Green	09=Salmon	14=Red
05=Green-Yellow	10=Pink-Orange	15=Red & White
		16=Pale Purple
		17=Purple
		18=Colorless
		19=White
		20=White Capped
		21=Buff
		22=Tan
		23=Brown
		24=Bronze
		25=Variegated (Describe)
		26=Other (Describe)
STANDARD INBRED CHOICES (Use the most similar (in background and maturity) of these to make comparisons based on grow-out trial data):		
Yellow Dent Families:		
Family	Members	Yellow Dent (Unrelated):
B14	CM105, A632, B64, B68	Co109, ND246,
B37	B37, B76, H84	Oh7, T232,
B73	N192, A679, B73, NC268	W117, W153R,
C103	Mo17, Va102, Va35, A682	W18BN
Oh43	A619, MS71, H99, Va26	White Dent:
WF9	W64A, A554, A654, Pa91	C166, H105, Ky228
		Sweet Corn:
		C13, Iowa5125, P39, 2132
		Popcorn:
		SG1533, 4722, HP301, HP7211
		Pipcorn:
		Mo15W, Mo16W, Mo24W

Groups on Lynx/Osborn/Grumst/98-99PVP

EXHIBIT C: PHJ8R

1. TYPE: (describe intermediate types in Comments section):			Standard Variety Name		
2 1=Sweet 2=Dent 3=Flint 4=Flour 5=Pop 6=Ornamental			A619		
2. REGION WHERE DEVELOPED IN THE U.S.A.:			Standard Seed Source		
5 1=Northwest 2=Northcentral 3=Northeast 4=Southeast 5=Southcentral 6=Southwest 7=Other <u>Central Corn Belt</u>			AMES 19306		
3. MATURITY (In Region of Best Adaptability; show Heat Unit formula in 'Comments' section)			DAYS HEAT UNITS		
DAYS HEAT UNITS			DAYS HEAT UNITS		
<u>073</u> <u>1.385.7</u> From emergence to 50% of plants in silk			<u>070</u> <u>1.275.3</u>		
<u>073</u> <u>1.395.3</u> From emergence to 50% of plants in pollen			<u>069</u> <u>1.256.7</u>		
<u>002</u> <u>0.060.7</u> From 10% to 90% pollen shed			<u>003</u> <u>0.084.7</u>		
From 50% silk to optimum edible quality					
From 50% silk to harvest at 25% moisture					
4. PLANT:			Standard Sample		
			Deviation Size		
<u>212.0</u> cm Plant Height (to tassel tip)			<u>173.7</u> <u>12.90</u> <u>03</u>		
<u>080.3</u> cm Ear Height (to base of top ear node)			<u>053.3</u> <u>06.51</u> <u>03</u>		
<u>014.5</u> cm Length of Top Ear Internode			<u>013.9</u> <u>02.32</u> <u>03</u>		
<u>0.0</u> Average Number of Tillers			<u>0.0</u> <u>00.00</u> <u>03</u>		
<u>1.1</u> Average Number of Ears per Stalk			<u>0.8</u> <u>00.25</u> <u>03</u>		
<u>3</u> Anthocyanin of Brace Roots: 1=Absent 2=Faint 3=Moderate 4=Dark			<u>2</u>		
5. LEAF:			Standard Sample		
			Deviation Size		
<u>09.3</u> cm Width of Ear Node Leaf			<u>09.1</u> <u>00.12</u> <u>03</u>		
<u>75.5</u> cm Length of Ear Node Leaf			<u>66.6</u> <u>04.00</u> <u>03</u>		
<u>05</u> Number of leaves above top ear			<u>06</u> <u>00.40</u> <u>03</u>		
<u>14</u> Degrees Leaf Angle (measure from 2nd leaf above ear at anthesis to stalk above leaf)			<u>22</u> <u>07.62</u> <u>03</u>		
<u>03</u> Leaf Color (Munsell code) <u>7.5GY34</u>			<u>03</u> <u>5GY34</u>		
<u>1</u> Leaf Sheath Pubescence (Rate on scale from 1=none to 9=like peach fuzz)			<u>1</u>		
Marginal Waves (Rate on scale from 1=none to 9=many)					
Longitudinal Creases (Rate on scale from 1=none to 9=many)					
6. TASSEL:			Standard Sample		
			Deviation Size		
<u>06</u> Number of Primary Lateral Branches			<u>07</u> <u>01.80</u> <u>03</u>		
<u>10</u> Branch Angle from Central Spike			<u>24</u> <u>03.80</u> <u>03</u>		
<u>53.7</u> cm Tassel Length (from top leaf collar to tassel tip)			<u>55.3</u> <u>01.75</u> <u>03</u>		
<u>3</u> Pollen Shed (rate on scale from 0=male sterile to 9=heavy shed)			<u>6</u>		
<u>07</u> Anther Color (Munsell code) <u>2.5Y86</u>			<u>05</u> <u>10Y810</u>		
<u>01</u> Glume Color (Munsell code) <u>5GY68</u>			<u>01</u> <u>5GY66</u>		
<u>1</u> Bar Glumes (Glume Bands): 1=Absent 2=Present			<u>1</u>		
Application Variety Data			Standard Variety Data		

Application Variety Data		PHJ8R		Page 2		Standard Variety Data	
7a. EAR (Unhusked Data):							
01	Silk Color (3 days after emergence) (Munsell code)	2.5GY88		07	2.5GY94		
03	Fresh Husk Color (25 days after 50% silking) (Munsell code)	5GY58		01	5GY76		
21	Dry Husk Color (65 days after 50% silking) (Munsell code)	2.5Y8.54		21	2.5Y8.54		
1	Position of Ear at Dry Husk Stage: 1= Upright 2= Horizontal 3= Pendant			3			
5	Husk Tightness (Rate of Scale from 1=very loose to 9=very tight)			4			
2	Husk Extension (at harvest): 1=Short (ears exposed) 2=Medium (<8 cm)			2			
	3=Long (8-10 cm beyond ear tip) 4=Very Long (>10 cm)						
7b. EAR (Husked Ear Data):						Standard	Sample
		Deviation	Size			Standard	Sample
16.7	cm Ear Length	01.53	03	15.0	02.00	03	
39.0	mm Ear Diameter at mid-point	01.00	03	43.3	02.08	03	
115.3	gm Ear Weight	10.97	03	72.0	14.73	03	
14	Number of Kernel Rows	00.58	03	14.0	01.00	03	
2	Kernel Rows: 1=Indistinct 2=Distinct			2			
1	Row Alignment: 1=Straight 2=Slightly Curved 3=Spiral			1			
09.3	cm Shank Length	00.58	03	13.3	01.53	03	
2	Ear Taper: 1=Slight 2= Average 3=Extreme			2			
8. KERNEL (Dried)						Standard	Sample
		Deviation	Size			Standard	Sample
11.3	mm Kernel Length	00.58	03	09.7	00.58	03	
07.7	mm Kernel Width	00.58	03	08.7	00.58	03	
04.7	mm Kernel Thickness	00.58	03	06.3	00.58	03	
66.7	% Round Kernels (Shape Grade)	10.12	03	56.3	04.16	03	
1	Aleurone Color Pattern: 1-Homozygous 2=Segregating			1			
07	Aleurone Color (Munsell code)	10YR714		07	10YR814		
07	Hard Endosperm Color (Munsell code)	10YR712		07	10YR712		
05	Endosperm Type:			3			
	1=Sweet (Su1) 2=Extra Sweet (sh2) 3=Normal Starch						
	4=High Amylose Starch 5=Waxy Starch 6=High Protein						
	7=High Lysine 8=Super Sweet (se) 9=High Oil						
	10=Other_____						
31.0	gm Weight per 100 Kernels (unsized sample)	03.00	03	27.33	00.58	03	
9. COB:						Standard	Sample
		Deviation	Size			Standard	Sample
19.7	mm Cob Diameter at mid-point	01.15	03	26.7	00.58	03	
14	Cob Color (Munsell code)	10R36		19	2.5Y92		

10. DISEASE RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant);
leave blank if not tested; leave Race or Strain Options blank if polygenic):

A. Leaf Blights, Wilts, and Local Infection Diseases

	Anthrachnose Leaf Blight (<i>Colletotrichum graminicola</i>)	
	Common Rust (<i>Puccinia sorghi</i>)	
	Common Smut (<i>Ustilago maydis</i>)	
	Eyespot (<i>Kabatiella zeae</i>)	
	Goss's Wilt (<i>Clavibacter michiganense</i> spp. <i>nebraskense</i>)	
<u>4</u>	Gray Leaf Spot (<i>Cercospora zeae-maydis</i>)	<u>3</u>
	Helminthosporium Leaf Spot (<i>Bipolaris zeicola</i>) Race _____	
<u>6</u>	Northern Leaf Blight (<i>Exserohilum turcicum</i>) Race _____	<u>2</u>
<u>6</u>	Southern Leaf Blight (<i>Bipolaris maydis</i>) Race _____	<u>5</u>
	Southern Rust (<i>Puccinia polysora</i>)	
<u>5</u>	Stewart's Wilt (<i>Erwinia stewartii</i>)	<u>3</u>
	Other (Specify) _____	

B. Systemic Diseases

	Corn Lethal Necrosis (MCMV and MDMV)	
<u>9</u>	Head Smut (<i>Sphacelotheca reiliana</i>)	<u>9</u>
	Maize Chlorotic Dwarf Virus (MDV)	
	Maize Chlorotic Mottle Virus (MCMV)	
	Maize Dwarf Mosaic Virus (MDMV)	
	Sorghum Downy Mildew of Corn (<i>Peronosclerospora sorghi</i>)	
	Other (Specify) _____	

C. Stalk Rots

<u>5</u>	Anthrachnose Stalk Rot (<i>Colletotrichum graminicola</i>)	<u>3</u>
	Diplodia Stalk Rot (<i>Stenocarpella maydis</i>)	
	Fusarium Stalk Rot (<i>Fusarium moniliforme</i>)	
	Gibberella Stalk Rot (<i>Gibberella zeae</i>)	
	Other (Specify) _____	

D. Ear and Kernel Rots

	Aspergillus Ear and Kernel Rot (<i>Aspergillus flavus</i>)	
<u>2</u>	Diplodia Ear Rot (<i>Stenocarpella maydis</i>)	<u>1</u>
<u>3</u>	Fusarium Ear and Kernel Rot (<i>Fusarium moniliforme</i>)	<u>5</u>
	Gibberella Ear Rot (<i>Gibberella zeae</i>)	
	Other (Specify) _____	

11. INSECT RESISTANCE (Rate from 1 (most susceptible) to 9 (most resistant); (leave blank if not tested) :

Banks grass Mite (*Oligonychus pratensis*)
 Corn Worm (*Helicoverpa zea*)
 Leaf Feeding
 Silk Feeding
 mg larval wt.
 Ear Damage
 Corn Leaf Aphid (*Rhopalosiphum maidis*)
 Corn Sap Beetle (*Carpophilus dimidiatus*)
 European Corn Borer (*Ostrinia nubilalis*)
 1st Generation (Typically Whorl Leaf Feeding)
 2nd Generation (Typically Leaf Sheath-Collar Feeding)
 Stalk Tunneling
 cm tunneled/plant
 Fall Armyworm (*Spodoptera frugiperda*)
 Leaf Feeding
 Silk Feeding
 mg larval wt.
 Maize Weevil (*Sitophilus zeamais*)
 Northern Rootworm (*Diabrotica barberi*)
 Southern Rootworm (*Diabrotica undecimpunctata*)
 Southwestern Corn Borer (*Diatraea grandiosella*)
 Leaf Feeding
 Stalk Tunneling
 cm tunneled/plant
 Two-spotted Spider Mite (*Tetranychus urticae*)
 Western Rootworm (*Diabrotica virgifera virgifera*)
 Other (Specify) _____

12. AGRONOMIC TRAITS:

<u>5</u>	Staygreen (at 65 days after anthesis) (Rate on a scale from 1=worst to excellent)	<u>3</u>
<u>0.0</u>	% Dropped Ears (at 65 days after anthesis)	<u>0.5</u>
	% Pre-anthesis Brittle Snapping	
	% Pre-anthesis Root Lodging	
<u>12.5</u>	Post-anthesis Root Lodging (at 65 days after anthesis)	<u>1.3</u>
<u>5,848.9</u>	Kg/ha Yield of Inbred Per Se (at 12-13% grain moisture)	<u>2,857.0</u>

13. MOLECULAR MARKERS: (0=data unavailable; 1=data available but not supplied; 2=data supplied):

1 Isozymes0 RFLP's0 RAPD's

COMMENTS (eg. state how heat units were calculated, standard inbred seed source, and/or where data was collected. Continue in Exhibit D):

CLARIFICATION OF DATA IN EXHIBITS B AND C

Please note the data presented in Exhibit C, "Objective Description of Variety," are collected primarily at Johnston, Iowa and Ankeny, Iowa. The data in Exhibit B are from comparisons of inbreds grown in the same tests in the adapted growing area of PHJ8R and in Johnston, IA and Ankeny, IA. The data in Tables 1A and 1B are from paired comparisons collected in Johnston, IA and Ankeny, IA. The data in Table 2 are from paired comparisons grown primarily in the adapted growing area of PHJ8R. These traits collectively show distinct differences between the two varieties.

JMS
12/14/01

The data collected in exhibit C were collected from environments in 1999 for page 1 and 2. There are factors that differ from environment to environment. The environments had different planting dates. Environmental temperature and precipitation differences during the vegetative and grain fill periods can impact plant and grain traits and be a source of variability. These data are mostly based on 5 plants measured at each location. There often is more variability associated with environment to environment factors than within locations. Please see Table 3 for average temperature and rainfall information in 1999.

Table 3. Temperature and Rainfall**TEMPERATURE**

YEAR	MAY	JUN	JULY	AUG	AVERAGE
1994	59.8	70.7	71.9	69.0	67.9
1995	56.2	69.4	74.3	76.9	69.2
1996	56.2	69.3	71.3	70.5	66.8
1997	53.5	70.6	74.1	69.6	67.0
1998	64.7	66.6	74.8	73.5	69.9
1999	60.7	69.7	78.7	70.5	69.9

RAINFALL

YEAR	MAY	JUN	JULY	AUG	Total
1994	3.67	5.75	1.71	4.18	15.31
1995	5.04	4.19	2.94	2.87	15.04
1996	8.47	4.35	2.51	2.14	17.47
1997	4.32	3.27	4.10	1.36	13.05
1998	6.46	11.07	5.70	4.96	28.19
1999	6.46	4.54	4.45	6.55	21.85

EXHIBIT E
STATEMENT OF THE BASIS OF OWNERSHIP

The following statements are made in accordance with the Privacy Act of 1974 (5 U. S. C. 552a) and the Paperwork Reduction Act (PRA) of 1995.

Application is required in order to determine if a plant variety protection certificate is to be issued (7 U.S.C. 2421). Information is held confidential until certificate is issued (7 U.S.C. 2426).

1. NAME OF APPLICANT(S) PIONEER HI-BRED INTERNATIONAL, INC.	2. TEMPORARY DESIGNATION OR EXPERIMENTAL NUMBER	3. VARIETY NAME PHJ8R
4. ADDRESS (Street and No., or R.F.D. No., City, State, and ZIP, and Country) 7301 NW 62nd AVENUE P.O.BOX 85 JOHNSTON, IA 50131-0085	5. TELEPHONE (include area code) 515-270-4051	6. FAX (include area code) 515-253-2125
7. PVPO NUMBER 000000203		

8. Does the applicant own all rights to the variety? Mark an "X" in appropriate block. If no, please explain: ☒ YES ☐ NO

9. Is the applicant (individual or company) a U.S. national or U.S. based company? ☒ YES ☐ NO

If no, give name of country

10. Is the applicant the original owner? ☒ YES ☐ NO If no, please answer one of the following:

a. If original rights to variety were owned by individual(s), is(are) the original owner(s) a U.S. national(s)?

☐ YES ☐ NO If no, give name of country

b. If original rights to variety were owned by a company(ies), is(are) the original owner(s) a U.S. based company?

☒ YES ☐ NO If no, give name of country

11. Additional explanation on ownership (if needed, use reverse for extra space):

PHJ8R is owned by Pioneer Hi-Bred International, Inc.

PLEASE NOTE:

Plant variety protection can be afforded only to owners (not licensees) who meet one of the following criteria:

1. If the rights to the variety are owned by the original breeder, that person must be a U.S. national, national of a UPOV member country, or national of a country Which affords similar protection to nationals of the U.S. for the same genus and species.
2. If the rights to the variety are owned by the company which employed the original breeder(s), the company must be U.S. based, owned by nationals of a UPOV member country, or owned by national of a country which affords similar protection to nationals of the U.S. for the same genus and species.
3. If the applicant is an owner who is not the original owner, both the original owner and the applicant must meet one of the above criteria.

The original breeder/owner may be the individual or company who directed final breeding. See section 41(a)(2) of the Plant Variety Protection Act for definition.

According to the Paperwork Reduction Act of 1995, no persons are required to respond to a collection of information unless it displays a valid OMB control number. The valid OMB control number for this information collection is 0581-0055. The time required to complete this information collection is estimated to average 10 minutes per response, including the time for reviewing instructions, searching existing data sources, gathering and maintaining the data needed, and completing and reviewing the collection of information.

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To file a complaint, write Secretary of Agriculture, U.S. Department of Agriculture, Washington, D.C. 20250, or call 1-800-245-6340 (voice) or (202) 720-1127 (TDD) USDA is an equal employer opportunity employer.

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